

DISTANCE TO ROADWAY AND LONG-TERM SURVIVAL FROM ACUTE MYOCARDIAL INFARCTION

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Background and Aims: The relationship between exposure to traffic-related air pollution and long-term survival from myocardial infarction (MI) has not been thoroughly investigated. We investigated the association between distance between residence and major roadway and 10-year all-cause mortality after MI in the Determinants of MI Onset Study (Onset Study), hypothesizing that living closer to a major roadway at the time of MI would be associated with increased risk of mortality.

Methods: The Onset Study enrolled 3886 individuals hospitalized for MI in 64 centers across the United States from 1989-1996. Institutionalized patients, those providing only Post Office Boxes, and those whose addresses could not be geocoded were excluded, leaving 3263 patients eligible for analysis. Addresses were geocoded and the distance to the nearest A1/A2 roadway was assigned and dichotomized to $> 100\text{m}$ or $\leq 100\text{m}$, based on previous studies. All patients were followed for mortality through 2007. We used Cox regression to calculate hazard ratios (HRs) after 10 years of follow-up, adjusting for personal characteristics (age, sex, race, educational attainment, marital status, smoking, body mass index, comorbidities, medications), neighborhood-level characteristics derived from US Census block group data (median income, education, urbanicity), and clinical characteristics at the time of MI (thrombolysis, peak CK, development of CHF and/or ventricular tachycardia).

Results: There were 941 deaths at 10 years of follow-up. In crude analyses, living within 100m of a major roadway was associated with an HR of 1.35 (95% confidence interval [CI] 1.07, 1.70). In fully adjusted analyses the HR was 1.26 (95% CI 0.99, 1.60).

Conclusions: In this group of survivors of acute MI from across the United States, living close to a major roadway at the time of MI was associated with increased risk of all-cause 10-year mortality; this relationship persisted but lost statistical significance even after adjusting for individual and neighborhood-level covariates.